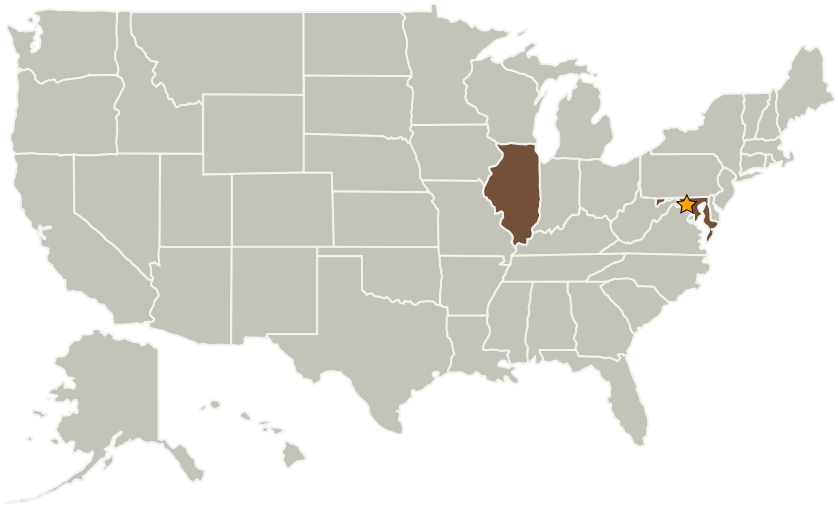
High Efficiency Low Scatter Echelle Grating, Phase I

Completed Technology Project (2005 - 2005)

Project Introduction

A high efficiency low scatter echelle grating will be developed using a novel technique of multiple diamond shaving cuts. The grating will have mirror surfaces on both faces for high efficiency in high orders. The grating will be manufactured using a 3/4 ton air bearing grating carriage that oscillates at 30 strokes per minute between two non-contact magnetic fields. The groove spacing will be controlled by an interferometer measuring system and feedback system between the optical blank and diamond cutting tool.

Primary U.S. Work Locations and Key Partners



Organizations Performing Work	Role	Type	Location
★Goddard Space Flight Center(GSFC)	Lead Organization	NASA Center	Greenbelt, Maryland
Diffraction Products Inc.	Supporting Organization	Industry	Woodstock, Illinois

Primary U.S. Work Locations	
Illinois	Maryland

High Efficiency Low Scatter Echelle Grating, Phase I

Table of Contents

Organizational Responsibility

Responsible Mission Directorate:

Space Technology Mission Directorate (STMD)

Lead Center / Facility:

Goddard Space Flight Center (GSFC)

Responsible Program:

Small Business Innovation Research/Small Business Tech Transfer

High Efficiency Low Scatter Echelle Grating, Phase I

Completed Technology Project (2005 - 2005)

Project Management

Program Director:

Jason L Kessler

Program Manager:

Carlos Torrez

Principal Investigator:

Edward Leibhardt

Technology Areas

Primary:

- TX05 Communications, Navigation, and Orbital Debris Tracking and Characterization Systems
  - TX05.1 Optical Communications
    - TX05.1.3 Lasers